

The Production of Pions by Negative Pions on Hydrogen Near the 56-2-5/51  
Threshold

energy. At the energy 370 MeV the measured cross section is ~60% of the differential cross section of the elastic scattering. There are 9 figures, 1 table, and 12 references, 7 of which are Slavic.

ASSOCIATION: United Institute for Nuclear Research (Ob'yedinennyj institut  
yadernyh issledovaniy)

SUBMITTED: October 19, 1957

AVAILABLE: Library of Congress

1. Pions-Production
2. Scintillation counters-Applications
3. Hydrogen-Meson cross section studies

Card 3/3

ACCESSION NR: AP4037616

S/0056/64/046/005/1919/1920

AUTHORS: Zinov, V. G.; Konin, A. D.; Mukhin, A. I.

TITLE: Transfer negative muon from a proton to carbon

SOURCE: Zh. eksper. i teor. fiz., v. 46, no. 5, 1964, 1919-1920

TOPIC TAGS: muon, muon transfer, muon K capture, carbon, polyethylene, x ray line

ABSTRACT: The transfer of muons to only excited levels of a Zμ-mesic atom with further cascade transition of the system to the ground state, followed by emission of a K-mesic x-ray series, which can be useful in the study of reverse mesic-atom processes that occur in compounds or mixtures containing hydrogen, was investigated by comparing the intensities of the K series from mesic atoms of carbon, produced when negatively charged muons are stopped in carbon (graphite) and in polyethylene ( $\text{CH}_2$ ). The data indicate that if it is as-

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ACCESSION NR: AP4037616

sumed that the probabilities of the muons landing on C and H are proportional to their charges, then the muons which jump over from the proton to the carbon in the cascade transitions give a K-mesic x-ray series whose intensity is  $0.98 \pm 0.03$  of the intensity occurring in the case of direct landing of the muons on the carbon. "The authors are grateful to S. S. Gershteyn for discussions."

ASSOCIATION: Ob'yedinenny'y institut yaderny'kh issledovaniy  
(Joint Institute of Nuclear Research)

SUBMITTED: 26Feb64

DATE ACQ: 09Jun64

ENCL: 01

SUB CODE: NP

NR REF Sov: 003

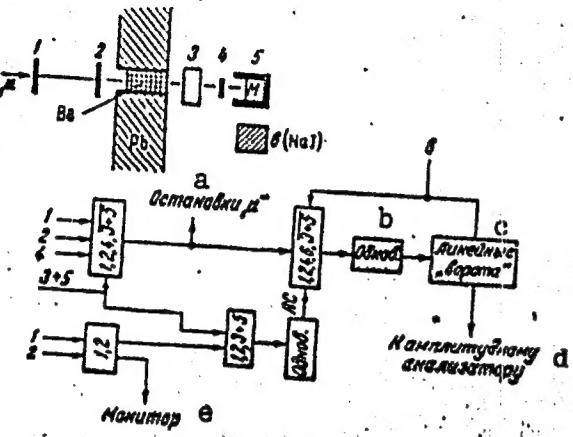
OTHER: 001

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ACCESSION NR: AP4037616

ENCLOSURE: 01



Experimental set-up and block diagram of the electronic circuitry: Pb - lead shield, Be - beryllium filter, M - sample (C or CH<sub>2</sub>), 1,2,4,5 - counters with plastic scintillators, 3 - counter with Cerenkov radiator, a - muon stopping, b - univibrator, c - linear gates, d - to pulse-height analyzer, e - monitor

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ZINOV, V.G.; KONIN, A.D.; MUKHIN, A.I.

Atomic capture of negative muons in chemical compounds. IAd. fiz.  
2 no. 5:859-867 N.'65. (MIRA 18:12)

1. Ob"yedinennyj institut yadernyh issledovaniy.

L 23252-66 EWT(m)/P

ACC NR: AP6009154

SOURCE CODE: UR/0367/65/002/005/0859/0867

AUTHOR: Zinov, V. G.; Konin, A. D.; Mukhin, A. I.

ORG: Joint Institute of Nuclear Research (Ob'yedinennyj institut yadernykh issledovanij)

TITLE: Atomic capture of negative muons in chemical compounds

SOURCE: Yadernaya fizika, v. 2, no. 5, 1965, 859-867

TOPIC TAGS: Mu meson, capture cross section, chemical compound, Pi meson, electron, oxide, probability

ABSTRACT: The authors investigated the atomic capture of negative muons in binary compounds of the type  $A_2B_m$ . Whereas earlier experimental work on the determination of the probability of atomic capture in chemical compounds was based on the method of time analysis, which entails considerable difficulties, the authors have used an experimental procedure based on measurement of the intensity of the K-mesic  $\bar{K}^+$ , emitted from one of the elements in pure form, and from the same element in the chemical compound. The work was performed with the OIYAI synchrocyclotron, using a beam of negative particles of 150 Mev/c momentum, containing approximately equal amounts of pions, muons, and electrons (Fig. 1). The characteristics of the apparatus are described in detail. The results show that the ratio of the pro-

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L 23257-66  
ACC NR: AP6009154

bilities of the atomic capture of muons in oxides varies with increasing charge of the nucleus in accordance with the periodic table, and depends on the type of the compound ( $MgO$  and  $MgO_2$ , etc.). The ratio of probabilities of the atomic capture in metal halides and in a given element will similarly decrease in the same relationship, according to the authors thank I. A. Yutlandov for supplying numerous chemical compounds and their purification, Yu. G. Budayshov, A. V. Semenov, A. N. Tsybulya, N. S. Zhdanov, and two others for help in the preparation of samples, and also the authors thank the Institute of Nuclear Physics of the USSR Academy of Sciences, Moscow, for the use of the cyclotron. The authors also thank the Institute of Nuclear Physics of the USSR Academy of Sciences, Moscow, for the use of the cyclotron.

SUB CODE: 20/ SURM DATE: 28May95/  
Card 2/2

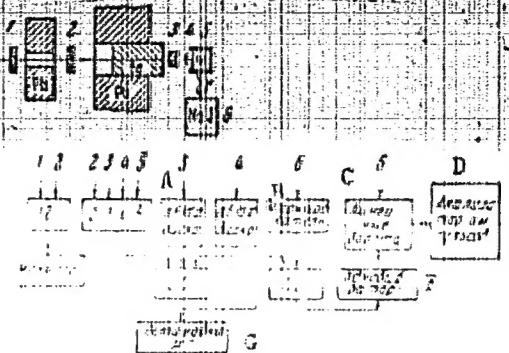


Fig. 1. Geometry of experiment and block diagram of electronic equipment. A - Disc; B - shaper; C - linear gates; D - pulse selector; E - mixer; F - unit; G - coincidence circuit.

ZINOV, V.G.

Calibration of the scale of time analyzers. Prib. i tekhn. eksp.  
8 no.1:165-166 Ja-F '63. (MIRA 16:5)

1. Ob'yedinenyy institut yadernykh issledovaniy.  
(Pulse techniques (Electronics))  
(Electronic apparatus and appliances)

ZINOV, V.G.

Use of tubes at low electrode voltages in coincidence circuits.  
Prib. i tekhn. eksp. 8 no.1:173-174 Ja-F '63. (MIRA 16:5)

1. Ob"yedinennyj institut yadernykh issledovaniy.  
(Electric circuits) (Electron tubes)

AUTHOR: Zinov, V.G.

TITLE: Calibration of time-analyzers

Trudy po zadani po tekhnicheskym issledovaniyam, no. 1, 1963.

"APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R002065220011-2

shown in Fig. 2. There are

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Use of vacuum tubes ....

S/120/63/000/001/052/072  
E192/E582

Similar results were obtained with other tubes by using the first  
grid in the cathode circuit as the control grid.

S/120/62/000/005/017/036  
E192/E382

AUTHORS: Zinov, V.G. and Medved', S.V.

TITLE: Smoothing of the time intervals between randomly distributed pulses

PERIODICAL: Pribory i tekhnika eksperimenta, no. 5, 1962,  
104 - 105

TEXT: Smoothing of the time intervals between randomly distributed pulses can be done by a circuit consisting of: a forming stage; integrating circuit; limiter-amplifier and a pulse-generator. The forming stage produces "standard" pulses such that each pulse imparts an arbitrary unit charge to the integrating circuit. The capacitance of the integrating circuit discharges linearly and the discharge time is equal to  $T = CV/I$ , where C is the capacitance, V is the voltage to which a standard pulse charges the capacitor and I is the discharge current. If m pulses are rapidly applied to the system, the overall discharge time is  $T = mCV/I$ . T is therefore dependent on the number of input pulses and is independent of the instant of their appearance. The limiter

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S/120/62/000/005/017/036

Smoothing of the time intervals... E192/E382

amplifier then generates a pulse whose duration is  $m\tau$ . This pulse actuates the generator, whose natural period is also equal to  $\tau$ . The operation of the generator is only possible in the presence of the pulse from the limiter. The number of output pulses from the generator is therefore equal to the number of input pulses but the spacing between them will always be equal to or longer than  $\tau$ . A detailed circuit diagram of the integrating-circuit amplifier and the generator is shown in Fig. 2. The authors express their gratitude to A.A. Tyapkin for valuable advice. There are 3 figures.

ASSOCIATION: Ob'yedinennyj institut yadernykh issledovaniy  
(Joint Institute for Nuclear Research)

SUBMITTED: January 18, 1962

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85677

S/056/60/038/006/019/049/XX  
B006/B070

24.6900 (1138,1191,1559)

AUTHORS: Zinov, V. G., Konin, A. D., Korenchenko, S. M.  
Pontekorvo, B.TITLE: The Search for the  $\rho^0$  Meson and the Verification of  
Dispersion Relations in  $\pi N$  ScatteringPERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki,  
1960, Vol. 38, No. 6, pp. 1708 - 1714TEXT: Results of  $\pi^- p$  interaction cross section ( $\sigma_t^-$ ) measurements  
and of the energy dependence of  $\sigma_t^-$ , as well as a comparison of the  
results with those obtained by other authors are given. The object  
of the study was to look for anomalies in the energy distribution of  
 $\sigma_t^-$  ( $\rho^0$  meson) and to check the Puppi-Stanghellini problem. The  
experimental arrangement is first described (Fig. 1). The target was  
liquid hydrogen in a vessel made of foam polystyrene (walls, 0.8 g/cm<sup>2</sup>).  
The hydrogen density was 0.0708 g/cm<sup>3</sup> so that  $(0.4607 \pm 0.0023) \cdot 10^{24}$ 

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The Search for the  $\rho^0$  Meson and the  
Verification of Dispersion Relations  
in  $\pi N$  Scattering

S/056/60/038/006/019/049/XX  
B006/B070

hydrogen nuclei fell in the path of the beam trajectory per  $\text{cm}^{-2}$ . The electronic apparatus was the same as described in Ref. 3; the photo-multipliers used together with the scintillation counters were of the type "D3Y-33 (FEU-33). Due to the exactly stabilized magnetic field ( $\pm 0.1\%$ ) and the exact measurement of the Hall current ( $0.5\%$ ), the pion momentum could be determined with an accuracy of  $\pm 1\%$ . The energy spread of the beam was  $\pm 0.5 \text{ Mev}/\text{cm}$ . The energy loss in hydrogen was  $\sim 3 \text{ Mev}$ .  $\sigma_t$  was measured for about 50 pion energy values in the range

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140-360 Mev with a total accuracy of  $1.5 \pm 2\%$ , but no anomalies could be found which would indicate the existence of a  $\rho^0$  meson. The individual values of measurement are shown in a table; the data for accuracy refer to systematic errors. The results of the study are discussed in detail. The fact that no anomalies exceeding  $3 - 4\%$  could be found in the energy dependence of the cross section values for the energy range 140 - 360 Mev, and so no  $\rho^0$  meson having a mass of between 270 and 410 Mev/ $c^2$  could be found, does not mean that no such mesons exist. The data obtained are in conflict with the peaks

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B006/B070

The Search for the  $\varphi^0$  Meson and the  
Verification of Dispersion Relations  
in  $\pi N$  Scattering

for  $\sigma_t(E)$  ( $E_2 \sim 650$  Mev and  $E_3 \sim 950$  Mev) obtained by Frisch et al.,  
but agree with the values ( $E_2 \sim 610$ ,  $E_3 \sim 880$  Mev) obtained by Brisson.

The data are also in agreement with the dispersion relations for

$\pi^- p$  scattering. So it can be proved that the Puppi-Stanghellini  
problem as such does not exist; it arises only from the inaccuracy  
in the measurement of the total  $\pi^- p$  interaction cross section.

S. N. Sokolov, A. I. Mukhin, V. A. Meshcheryakov, and N. P. Klepikov  
are thanked for discussions, and Yu. N. Denisov for help in the  
experiments. The results were already communicated to the Conference  
on Physics of High-energy Particles held in Kiev in 1959. There are  
4 figures, 2 tables, and 15 references: 4 Soviet, 1 British, 3 Italian,  
and 7 US.

ASSOCIATION: Ob'yedinenyyi institut yadernykh issledovaniy  
(Joint Institute of Nuclear Research)

SUBMITTED: January 13, 1960

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B006/B070

$E_{\pi^-}$ , MeV	$\sigma_t^-, 10^{-30} \text{ cm}^2$	$E_{\pi^-}$ , MeV	$\sigma_t^-, 10^{-30} \text{ cm}^2$	$E_{\pi^-}$ , MeV	$\sigma_t^-, 10^{-30} \text{ cm}^2$	$E_{\pi^-}$ , MeV	$\sigma_t^-, 10^{-30} \text{ cm}^2$
158,2	58,4±2,0	220,2	52,2±1,0	254,7	39,8±0,8	302,5	28,9±0,8
171,7	67,2±1,1	225,0	50,2±0,9	258,0	38,8±0,8	307,7	28,1±0,8
178,4	67,2±1,1	228,3	48,2±0,9	261,4	36,8±0,8	313,0	28,7±0,7
185,2	67,7±1,0	231,6	49,0±0,9	268,5	35,6±0,8	318,2	27,0±0,6
189,9	67,8±0,8	234,9	44,5±0,9	271,8	33,4±0,8	323,5	26,2±0,6
196,2	64,0±1,1	238,2	44,9±0,9	276,7	31,1±0,8	328,2	26,4±0,6
201,0	63,8±1,0	241,5	42,7±0,9	281,3	32,4±0,8	334,2	26,0±0,6
205,8	59,3±1,0	244,8	43,1±0,9	286,9	31,6±0,8	345,0	24,9±1,0
240,6	58,7±1,1	248,1	41,0±0,9	292,0	30,5±0,8	361,0	25,2±1,0
215,4	55,6±1,0	251,4	39,3±0,9	297,2	29,3±0,8		

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ZINOV, V.G.; KORENCHENKO, S.M.; POLUMORDVINNOVA, N.I.; TENTYUKOVA, G.N.

Phase shift analysis of scattering of 240-330 Mev  $\pi^+$ -mesons on hydrogen. Zhur.eksp.i teor.fiz. 38 no.5:1407-1418 My '60.  
(MIRA 13:7)

1. Ob'yedinennyj institut-yadernykh issledovaniy.  
(Mesons--Scattering)

ZINOV, V.G.; KONIN, A.D.; KORIENCHENKO, S.M.; PONTEKOROV, B.

Search for the  $\rho^0$ -meson and a check of the dispersion relations in  
 $\pi N$ -scattering. Zhur.eksp.i teor.fiz. 38 no.6:1708-1714 Je  
'60. (MIRA 13:7)

1. Ob'yedinennyj institut yadernykh issledovaniy.  
(Mesons)

83573

S/056/60/038/005/006/050  
B006/B070

24.6900

AUTHORS:

Zinov, V. G., Korenchenko, S. M.

TITLE:

Charge Exchange Scattering <sup>1/9</sup> of  $\pi^-$  Mesons by Hydrogen at Energies of 240-330 Mev

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,  
Vol. 38, No. 5, pp. 1399-1406

TEXT: From the experimentally found angular distribution of the gamma quanta resulting from pion decay, the authors have determined the angular distribution of  $\pi^0$  mesons. The experimental arrangement is schematically shown in Fig. 1, and is briefly described. A detailed description is given in Ref. 1. The target was liquid hydrogen. The counters were connected partly in coincidence and partly in anti-coincidence. The gamma quanta resulting from  $\pi^0$  decay were recorded at eight angles, and the ratio of the number of coincidences of the type 12345 (Q) to the number of double coincidences of the type 12 (D) was measured. (The figures indicate the counters in Fig. 1.) The difference of the Q/D ratios obtained with and without hydrogen target was determined. Denoting this difference by

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Charge Exchange Scattering of  $\pi^-$  Mesons by  
Hydrogen at Energies of 240-330 Mev

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$(Q/D)_{\text{diff}}$ , the differential charge exchange scattering cross section is calculated from the formula

$$(d\sigma/d\Omega)_{\text{diff}} = \frac{(Q/D)_{\text{diff}}}{N\Omega f} \cdot 10^{-6}, \text{ where } N \text{ is}$$

the average number of hydrogen atoms per  $\text{cm}^2$  ( $-0.447 \cdot 10^{24}$ ),  $\Omega$  is the solid angle, and  $f$  the correction for the admixture of muons in the beam (4.5 to 5.5%). The extensive experimental material is clearly shown in tabular form. Tables 1 and 2 give the measured values of  $Q/D$  with and without hydrogen at eight different angles for 240 and 333 Mev  $\pi^-$  mesons. Tables 3 - 6 give differential gamma-production cross sections for charge exchange scattering of 240, 270, 307, and 333 Mev  $\pi^-$  mesons by hydrogen. The experimentally observed production cross section of gamma quanta may be expressed in terms of the coefficients of  $\pi^0$  angular distribution in the

following way:  $(d\sigma^\gamma/d\Omega)_{\text{exp}} = \frac{1 - \beta^2}{(1 - \beta \cos \theta)^2} \sum_l \sum_l \xi_l(\theta) k_l A_l^0 P_l(\cos \gamma)$ . The

$\xi_l(\theta)$  are defined by formula (5);  $\beta$  is the velocity in the center-of-mass system,  $\theta$  is the emission angle in the laboratory system,  $\gamma$  is the emission

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Charge Exchange Scattering of  $\pi^-$  Mesons by  
Hydrogen at Energies of 240-330 Mev

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angle in the center-of-mass system of the gamma quanta. The coefficients  $A_1^0$  obtained by solving this equation by the method of least squares are given in Table 7; the  $E_1(0)$  for 240 and 333 Mev are given in Table 8. Using the calculated values of  $A_1^0$  (Table 7, formula (4)), the angular distribution of the  $\pi^-$  mesons in the center-of-mass system can be obtained from the production cross section of the gamma quanta as the sum of the terms in the first three Legendre polynomials:  $(d\sigma/d\omega)_{\pi^- \rightarrow \pi^0} = A_0^0 + A_1^0 P_1(\cos \vartheta) + A_2^0 P_2(\cos \vartheta)$ .

The gamma-quantum recording efficiency  $\xi$  as a function of the quantum energy,  $E$ , is shown in Fig. 2. The  $k_1$  coefficients of (4) are given in Table 9; the coefficients of the angular distribution of the gamma quanta in the formula  $d\sigma/d\omega = \sum_1 A_1^y P_1(\cos y)$  are given in Table 10. The

coefficients of angular distribution of the  $\pi^0$  mesons are given in Table 11. There are 2 figures, 11 tables, and 4 references: 3 Soviet and 1 US.

ASSOCIATION: Ob'yedinnennyj institut Yadernykh issledovaniy  
(Joint Institute of Nuclear Research)

SUBMITTED: November 17, 1959  
Card 3/3

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S/056/60/038/005/007/050  
B006/B070

24.6900

AUTHORS:

Zinov', V. G., Korenchenko, S. M., Polumordvinova, N. I.,  
Tentyukova, G. N.

TITLE:

Phase Shift Analysis of the Scattering of  $\pi$  Mesons by  
Hydrogen in the Energy Range 240 - 330 Mev

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,  
Vol. 38, No. 5, pp. 1407-1418

TEXT: In the previous paper in this issue (p. 1399), the authors have published the results of  $(\pi^-, p)$  charge-exchange scattering experiments. In the present paper, they give a phase shift analysis using the isotopic spin formalism which depends on the hypothesis of charge independence of the nuclear forces. The formulas are collected in the first part of the paper; in the second part, the method of phase shift analysis is briefly discussed, and the errors are determined. All calculations were performed on the fast electronic computer "Стрела" ("Strela"). The phase shift analysis, taking S and P waves into account (SP analysis), is given in part 3 of the paper. For every value of pion energy, 25 experimental points

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Phase Shift Analysis of the Scattering of  
 $\pi$  Mesons by Hydrogen in the Energy Range  
240-330 Mev

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were used: eight differential elastic ( $\pi^+, p$ ) scattering cross sections, seven differential elastic ( $\pi^-, p$ ) scattering cross sections, eight differential exchange scattering cross sections, and the two total scattering cross sections of the positive and the negative pions by hydrogen. Part of the experimental data are taken from the work of A. I. Mukhin, Ye. B. Ozerov, B. Pontekorvo, and N. A. Mitin. The phase shift data for 220-Mev pion energies, taken from a work of Ashkin et al., are given in Table 1. Depending on the kind of phase shift sets, the data are collected in seven variants in Tables 3-6 (for pion energies of 240, 270, 307, and 333 Mev). The angular distributions of the negative pions and gamma quanta for elastic and exchange scatterings calculated from the phase shifts, are shown in Figs. 1-4. The solid curves are drawn from the results of calculation from the formula  $d\sigma/d\omega = A_0 + A_1 P_1(\cos \theta) + A_2 P_2(\cos \theta)$ ; the broken lines are calculated from the SP analysis. The elements of the error matrix for pion energies of 220, 240, 270, 307, and 333 Mev are collected in Tables 7-11. The phase analysis taking S, P, and D waves into account (SPD analysis) is treated in part 4. The contribution of the D-waves ( $l=2$ ) is already significant for  $E_\pi \sim 300$  Mev. The numerical results of

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Phase Shift Analysis of the Scattering of  
 $\pi$  Mesons by Hydrogen in the Energy Range  
240-330 Mev

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the calculations are given in Tables 12 and 13. The results of the phase shift analysis are compared with those obtained from the dispersion relations in part 5. (The real part of the scattering amplitudes for  $0^\circ$  are determined as functions of  $E_\pi$  by means of the dispersion relations, see Fig. 6). The authors thank B. Pontekorvo for interest and help; A. I. Mukhin, L. I. Lapidus, S. N. Sokolov, and N. P. Klepikov for discussions; and I. V. Popova and L. A. Chudov for setting up programs for the computer. A. M. Baldin, Vasilevskiy, and Vishnyakov are mentioned. There are 6 figures, 13 tables, and 19 references: 10 Soviet, 7 US, 1 Italian, and 1 CERN.

ASSOCIATION: Ob'yedinenyyi institut yadernykh issledovaniy  
(Joint Institute of Nuclear Research)

SUBMITTED: November 17, 1959

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ZINOV, V.G.; KORENCHENKO, S.M.

Scattering of Mesons on hydrogen at energies of 240 and 270 Mev.  
Zhur.eksp. i teor.fiz. 36 no.2:618-619 F '59. (MIRA 12:4)

1. Ob'yedinenyyi institut yadernykh issledovaniy.  
(Mesons--Scattering) (Hydrogen)

'21 (1)

AUTHORS: Zinov, V. G., Konin, A. D.,  
Korenchenko, S. M., Pontekorvo, B. SOV/56-36-6-59/66

TITLE: A Possible Method of Searching for  $\rho^0$ -Mesons (Vozmozhnyy metod  
poiska  $\rho^0$ -mezona)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36,  
Nr 6, pp 1948 - 1950 (USSR)

ABSTRACT: Baz', Okun', and Smorodinskiy drew the attention of the au-  
thors of the present "Letter to the Editor" to certain singu-  
larities in the energy dependence of cross sections. As this  
promised to be a possibility of detecting  $\rho^0$ -mesons, the au-  
thors systematically investigated these cases and give a re-  
port on the results obtained. The intensity of a relatively  
narrow singularity in the energy dependence of the  $\pi^- p$ -inter-  
action cross section might, in principle, indicate the exis-  
tence of a  $\rho^0$ -meson. It might be expected that in the reactions  
 $\pi^- + p \rightarrow \pi^- + p$  and  $\pi^- + p \rightarrow \pi^0 + n$  an anomaly occurs in the energy  
dependence on the threshold of the reaction  $\pi^- + p \rightarrow \rho^0 + n$ . The

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A Possible Method of Searching for  $\rho^0$ -Mesons

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width of the singularity depends on the interaction radius and may be obtained from the condition  $kR \ll 1$ ; here  $k$  denotes the wave vector of the  $\rho^0$ -mesons formed in the c.m.s. This possibility is briefly discussed. It is assumed that the life of the  $\rho^0$ -mesons is long as against  $\Lambda/m c^2$ . The relative amplitude of the singularity  $\Delta\sigma/\sigma$  may amount to some %. The  $\rho^0$ -meson is assumed to differ from the  $\pi^0$ -meson only by the isotopic spin ( $T = 0$ ). The  $\rho^0$ -meson cannot decay quickly into 2 pions because of the conservation of parity, and because of the conservation of the quantum number  $G$  also not into 3 pions, so that the decay  $\rho^0 \rightarrow \gamma^+ \gamma^-$ , or, if the mass is sufficiently large,  $\rho^0 \rightarrow \pi^+ \pi^- \gamma$ . If  $m_{\rho^0} > 560 \text{ Mev}/c^2$ , it may also decay into four pions. Finally, several further problems connected with the mass of the  $\rho^0$ -meson are discussed. Ya. B. Zel'dovich pointed out that the existence of an exchange scattering of antiprotons ( $\bar{p} + p \rightarrow \bar{n} + n$ ) indicates a difference between the

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masses of  $\pi^0$ - and  $\rho^0$ -mesons. The authors finally thank L. I. Baz', V. B. Belyayev, B. N. Zakhar'yev, L. B. Okun' and Ya. A. Smorodinskiy for discussions. There are 6 references, 3 of which are Soviet.

ASSOCIATION: Ob"yedinennyi institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: March 23, 1959

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21(7)

SOV/56-36-2-43/63

AUTHORS:

Zinov, V. G., Korenchenko, S. M.

TITLE:

The Scattering of  $\pi^-$  - Mesons on Hydrogen at the Energy of  
240 Mev, 270 Mev (Rassseyaniye  $\pi^-$  - mezonov na vodorode pri  
energii 240 MeV, 270 MeV)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,  
Vol 36, Nr 2, pp 618 - 619 (USSR)

ABSTRACT:

The authors investigated the elastic scattering and the exchange scattering of negative pions on hydrogen at the energies of 240 and 270 Mev. They used a negative pion beam of the synchrocyclotron of the OIYaI (United Institute of Nuclear Research) and the measurements were carried out by means of scintillation counters. Liquid hydrogen was used as a target. The values of the differential cross sections found are given in 2 tables (in the present abstract given in an abbreviated form:

Card 1/3

The Scattering of  $\pi^-$ -Mesons on Hydrogen at the Energy  
of 240 Mev, 270 Mev SOV/56-36-2-43/63

$(240 \pm 7)$ Mev			
$\theta^o$ (c.m.s.)	$\left(\frac{d\sigma}{d\omega}\right)_{\pi^- \rightarrow \pi^-}$	$\theta^o$ (c.m.s.)	$\left(\frac{d\sigma}{d\omega}\right)_{\pi^- \rightarrow \gamma}$
39.9	$1.60 \pm 0.16$	19.7	$9.91 \pm 1.21$
97.8	$0.82 \pm 0.09$	114.9	$3.47 \pm 0.43$
158.1	$1.97 \pm 0.19$	157.0	$4.56 \pm 0.60$

$(270 \pm 7)$ Mev			
$\theta^o$ (c.m.s.)	$\left(\frac{d\sigma}{d\omega}\right)_{\pi^- \rightarrow \pi^-}$	$\theta^o$ (c.m.s.)	$\left(\frac{d\sigma}{d\omega}\right)_{\pi^- \rightarrow \gamma}$
40.6	$1.40 \pm 0.13$	20.0	$7.78 \pm 0.94$
98.8	$0.60 \pm 0.06$	115.9	$2.31 \pm 0.30$
158.4	$1.56 \pm 0.16$	157.4	$3.10 \pm 0.42$

If only S- and P- waves are assumed to take part in the scattering, the angular distribution can be written down as

Card 2/3

The Scattering of  $\pi^-$ -Mesons on Hydrogen at the Energy     S07/56-36-2-43/63  
of 240 Mev, 270 Mev

$$d\sigma/d\omega = AP_0 + BP_1 + CP_2$$

where  $P_0$ ,  $P_1$ ,  $P_2$  are Legendre (Lezhandr) polynomials. The values of the coefficients A, B, C are given in a table. The total cross sections of the interaction of negative pions with hydrogen at the energies of 240 and 270 Mev are equal to

$(48.3 \pm 3.3) \cdot 10^{-27} \text{ cm}^2$  and  $(36.5 \pm 2.4) \cdot 10^{-27} \text{ cm}^2$ , respectively.  
There are 3 tables.

ASSOCIATION: Ob'yedinennyi institut yadernykh issledovaniy (United Institute of Nuclear Research)

SUBMITTED: August 26, 1958

Card 3/3

SOV/128-59-10-11/24

18(5)

AUTHOR:

Zinov, V.M., Engineer

TITLE:

Hydromonitors for Cleaning Castings

PERIODICAL:

Liteynoye proizvodstvo, 1959, Nr 10, pp 31-32 (USSR)

ABSTRACT:

The author presents several schemes of hydromonitors for cleaning castings. The simplest construction is shown in fig.1. Through a pipe #1, closed up by a spheric abutment bearing #2, passing through pipe #3, the water enters the chamber under high pressure. Fig.4 shows a complete mechanized hydromonitor, developed by Ur-almashzavod. The hydromonitor constructed by Novo-Kramatorskiy zavod tyazhelogo mashinostroyeniya (Novo-Kramatorsk Factory for Heavy Machines) (Fig.5) has a transportation drive which consists of two telescopic jointed rods. Fig.6 shows a hydromonitor constructed by Ukrgilprotiyazhmash. This one gets its alternate motion from a pneumatic drive. There are 6 diagrams.

Card 1/1

05463  
SOV/120-59-3-34/46

AUTHOR: Zinov, V. G.

TITLE: Improvement of a Decade Scaler with Binary Scales  
(Uluchsheniye dekadnogo perescheta na dvoichnykh  
yacheykakh)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 3,  
p 135-136 (USSR)

ABSTRACT: A valve with two control grids (the second valve in Fig 2) is included in the back-coupling circuit to improve the reliability (ie to reduce the dependence on supply voltages and on size of input pulse). The pulse from the first scale-of-two is allowed to pass to the second only when the fourth is in its first stable state (ie unless the scaler reads 8 or 9). When the reading is 8, the unit functions as a simple scale of 2, with the output pulse appearing when the tenth pulse arrives. A delay is inserted in the loop back to the extra (gating) valve in order to prevent the gate from opening before the circuits have settled back to their normal states just after the tenth pulse.

Card 1/2

05463  
SOV/120-59-3-34/46

Improvement of a Decade Scaler with Binary Scales

The device is said to work reliably up to 400,000 c/s (regularly spaced). There are 2 figures and 1 Soviet reference.

ASSOCIATION: Ob"yedinennyj institut yadernykh issledovaniy  
(Joint Nuclear Research Institute)

SUBMITTED: May 4, 1958

Card 2/2

ZINOV, V.M.

Pedal valves. Mashinostroitel' no.3240 Mr '59. (MIRA 12:3)  
(Valves)

25(2)

SOV/117-59-3-30/37

AUTHOR: Zinov, V.M.

TITLE: A Pedal Valve (Pedal'nyy klapan)

PERIODICAL: Mashinostroitel', 1959, Nr 3, p 40 (USSR)

ABSTRACT: The short note describes and illustrates a special pedal-actuated valve which replaced the conventional stopper valves on water pipelines (for the water washing dirt from the visor and lighting windows of hydraulic chamber). The valve will be installed on the floor of the work platform and actuated by the operator by pressing on the pedal. A spring shuts the valve when the foot releases the pedal. There is 1 diagram.

Card 1/1

Zinov, V.M.

AUTHOR: Zinov, V.M., Engineer 118-58-4-19/23

TITLE: Centrifuges for the Dehydration of Sand (Tsentrifugi dlya obezvozhiwaniya peska)

PERIODICAL: Mekhanizatsiya Trudoyemkikh i Tyazhelykh Rabot, 1958, Nr 4, pp 41-42 (USSR)

ABSTRACT: The author describes various centrifuges for the dehydration of sand, such as the PM-1200 and PS-1200. The Zavod "Stankolit" - Moskva (Moscow "Stankolit" Plant) uses two automatic centrifuges type AG-1800 and NOGSh. The Khar'kovskoye otdeleniye nauchno-issledovatel'skogo instituta khimicheskogo mashinostroyeniya (Khar'kov Branch of the Scientific Research Institute for Chemical Machine Construction) has designed the horizontal automatic centrifuge AG-1200-2U, the production of which has been started at the Sumskiy zavod imeni M.V. Frunze (Plant imeni M.V. Frunze in Sumy). There is 1 figure and 1 table.

AVAILABLE: Library of Congress

Card 1/1 1. Centrifuges-Applications 2. Sand-Dehydration-Equipment

ZINOVA, A. D.

62/49741

USSR/Medicine - Marine Organisms Jul/Aug 48  
Medicina - Biologiya

Gives characteristics of four species of the  
Birmanek shores and the White Sea and a new  
species, *Porphyrace Helenea* Zin., "A. D. Zinova,  
Bot. Inst. Imeni V. I. Komarov, Acad. Sci. USSR,  
Leningrad, 3 pp

Botan Zhur" Vol. XXIII, No 4

Gives characteristics of four species of the  
*Porphyra* genus, the *Porphyra abyssicola* Kjellm.,  
the *Porphyra minuta* (A.B.) Kjellm., the *Porphyra*  
*opposita* (Kjellm.), and the new species,

62/49741

USSR/Medicine - Marine Organisms Jul/Aug 48  
(Contd)

*Porphyra Holmsae*. New species grows on stones  
and algae of the littoral zone in protected  
places. It is found on Sosnovets Island in the  
White Sea, and in Dal'n'ye Zelentsy, Yermyshevo,  
and Kildin in Birmanek. Submitted 12 Nov 47.

62/49741

"APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R002065220011-2

ZINOVA, A. D.

"Forms of Phyllitis Fasci Kutz," Bot. zhur., 34, No. 2, 1949

Botanical Inst. im. Komarov, Dept. Biol. Sci., AS USSR, Leningrad

APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R002065220011-2"

1. ZINOVA, A.D.
2. USSR (600)
4. Algae
7. A new species of brown algae, Halidrys murmanica A. Zinova sp. nova. Eot.mat. Otd. spor.rast. 8, 1952.

9. Monthly List of Russian Accessions, Library of Congress, APRIL 1953, Unclassified.

"APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R002065220011-2

ZINOVIA, A.D.

[Guide to the brown algae of the northern seas of the U.S.S.R.] Opredelitel' burykh vodoroslei severnykh morei SSSR. Moskva, Izd-vo Akademii nauk SSSR, 1953. 224 p.  
(MLRA 6:7)  
(Algae)

Remarks - D 372691 - 23 Dec 55

APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R002065220011-2"

KISELEV, I.A.; ZINOVIA, A.D.; KURSANOV, L.I.

[Classification manual of lower plants] Opredelitel' nizshikh  
rastenii v piati tomakh. Moskva, Gos. izd-vo "Sovetskaya nauka."  
Vol. 2 [Algae] Vodorosli. 1953. 310 p.  
(MLRA 7:2)  
(Algae)

ZINOVA, A.D.

New red alga of the genus Halosaccion (*De alga rhodophytica nova  
e genere Halosaccion*). Bot.mat.Otd.spor.rast. 9:93-95 My '53.  
(MLRA 7:2)  
(Algae)

ZINOVIA, A.D.

New family, genus, and species of brown algae. Trudy Bot. inat.  
Ser. 2 no. 9:223-244 '54.  
(White Sea--Algae)

(MLRA 7:11)

ZINOVA. A.D.

Materials on algal flora of the White Sea. Trudy Bot. inst.  
Ser. 2 no.9:245-258 '54. (MLRA 7:11)  
(White Sea--Algae)

ZINOVA, A-D.

TOPACHEVS'kiy, O.V. [reviewer]

"Guide to lower plants." Vol. 2: Algae. I.A. Kiselev, A.D. Zinova,  
L.I. Kursanov. Reviewed by O.A. Topachevs'kiy. Bot. zhur. [Ukr.] 11  
no. 3:126 '54. (NIBA 8:7)  
(Kiselev, I.A.) (Algae)

ZINOVA, A.D.; SAVICH, V.P., professor, zasluzhennyy doyatel' nauki RSFSR,  
redaktor; GOLOVNIN, M.I., redaktor; KRUGLIKOV, N.A., tekhnicheskiy  
redaktor.

[Guide to red algae of the northern seas of the U.S.S.R.] Opradelitel'  
krasnykh vodoroslei severnykh morei SSSR. Moskva, Izd-vo Akademii  
nauk SSSR, 1955. 219 p.  
(Russia, Northern—Algae)

ZINOVA, A.D.

Marine algae in the eastern part of the Soviet sector of the Arctic.  
Trudy Inst. okean. 23:146-167 '57. (MIRA 11:3)

1. Botanicheskiy institut AN SSSR.  
(Arctic Ocean--Algae)

ZINOVA, A.D.

Studying species of the genus Sphaerotrichia Kyl. Bot. zhur. 43  
no.10:1462-1469 O '58. (MIRA 11:11)

1. Botanicheskiy institut imeni V.L. Komarova AN SSSR, Leningrad.  
(Algae)

ZINOVA, A.D., kand.biol.nauk

Composition and nature of algal flora in shore waters of the  
Antarctic and near Kerguelen and Macquarie Islands. Infrom.  
biul.Sov.antark.eksp. no.3:47-49. '58. (MIRA 12:4)

1. Botanicheskiy institut AN SSSR.  
(Antarctic regions--Algae)  
(Kerguelen Islands--Algae)  
(Macquarie Island--Algae)

ZINOVA, A.D.

List of marine algae of southern Sakhalin and the southern islands  
of the Kurile chain. Issl.dal'nevost.mor.SSSR no.6:146-161  
'59. (MIRA 13:3)

1. Botanicheskiy institut AN SSSR.  
(Sakhalin--Algae) (Kurile Islands--Algae)

ZINOVA, A.D.

~~Phyllogigas and Himantothallus, two brown algae from the Antarctic.~~  
Bot. zhur. 44 no.3:372-379 Mr '59. (MIRA 12:7)

1. Botanicheskiy institut im. V.L. Komarova AN SSSR, Leningrad.  
(Antarctic regions--Algae)

ZINOV'A, A.D., VOZZHINSKAYA, V.B.

Finding the red alga Chordaria magellanica Kylin in the  
northern part of the Pacific Ocean. Bot. mat. Otd. spor.  
rast. 13:117-118 '60. (MIRA 13:?)  
(Pacific Ocean--Algae)

ZINNOVA, A.D.

New algae hitherto unknown in the Sea of Japan. Bot. mat.  
Otd. spor. rast. 13:113-117 '60. (MIRA 13:?)  
(Japan, Sea of--Algae)

TSAPKO, A.S., st. sov. red.; GLIKMAN, S.A., doktor khim. nauk, prof., red.; GEMP, K.P., st. nauchn. sotr., red.; GRYUNER, V.S., doktor tekhn. nauk, red.; DANILOV, S.N., red.; YEVETUSHENKO, V.A., kand. khim. nauk, red.; ZINOVIA, A.D., kand. biol. nauk, red.; KIZEVETTER, I.V., doktor tekhn. nauk, red.; KIREYEVA, M.S., kand. biol. nauk, red.; VULIKHMAN, M.A., red.; POTEKHIN, L.P., red.

[Transactions of the First All-Union Conference of Workers in the Algal Industry of the U.S.S.R.] Trudy Pervogo Vsesoiuznogo nauchno-tehnicheskogo soveshchaniia po vodoroslevoi promyshlennosti SSSR. Arkhangel'sk, Arkhangel'skoe knizhnoe izd-vo. Vol.1. 1962. 214 p. (MIRA 17:12)

1. Vsesoyuznoye soveshchaniye rabotnikov vodoroslevoy promyshlennosti SSSR. 1st. 2. Chlen-korrespondent AN SSSR (for Danilov). 3. Vsesoyuznyy nauchnyy institut morskogo rybnogo khozyaystva i okeanografii (for Kireyeva). 4. Nachal'nik Upravleniya rybnoy promyshlennosti Arkhangel'skogo sovnar-khoza (for TSapko). 5. Saratovskiy gosudarstvennyy universiteta im. N.G.Chernyshevskogo (for Glikman).

ZINOVA, A. D.

"Features of the marine algal flora of the Black Sea."

report submitted for 10th Intl Botanical Cong, Edinburgh, 3-12 Aug 64.

AS USSR, Leningrad.

ZINOVA, A.D.

The red alga Dilsea integra (Kjellm.) Rosev. Bot. mat. Otd.  
spor. rast. 14:82-86 Ja'61.

Index of marine algae collected by A.A. Birula in Spitsbergen.  
Ibid.:86-87

Algae of the Mezen Bay (White Sea). Ibid.:87-90 (MIRA 17:2)

ZINOVA, A.D.

Representatives of the family Delesseriaceae (Rhodophyta) from  
the islands of Kerguelen and Macquarie. Bot. mat. Otd. spor. rast.  
16r52-67 '63. (MIRA 16:10)

BOBROV, Ye.G.; BONDARTSEV, A.S.; BORISOVA, A.G.; VASIL'KOV, B.P.;  
VASIL'CHENKO, I.T.; GOLUBEKOVA, V.P.; GRUDZINSKAYA, I.A.;  
YEGOROVA, T.V.; ZINNOVA, A.D.; IVANINA, L.I.; LEONOVA, T.G.;  
MATSENKO, A.Ye.; PIDOTTI, O.I.; POBEDIMOVA, Ye.G.; POLYAKOV,  
P.P.; POYARKOVA, A.I.; SAVICH, V.P.; SIN'KOVA, G.N.; SMIRNOVA,  
Z.N.; SMOL'YANINOVA, L.A.; FEDOROV, Al.A.; KHARADZE, A.L.;  
TSVELEV, N.N.; SHISHKIN, B.K.[deceased]; PEN'KOVA, G.A., red.;  
BARANOVA, L.G., tekhn. red.; FRIDMAN, Z.L., tekhn. red.

[Botanical atlas] Botanicheskii atlas. Moskva, Sel'khozizdat,  
1963. 501 p. (MIRA 16:12)

1. Chlen-korrespondent AN SSSR (for Shishkin).  
(Botany--Atlases)

ZINOVA, A.D.

Representatives of the genus Rhodoglossum J. Ag. found near the  
Soviet coast of the Pacific Ocean. Bot. mat. Otd. spor. rast.  
15:70-74 Ja '62. (MIRA 15:10)  
(Pacific Ocean—Algae)

BERNSHTEYN, S.A., inzh.; DANILOV, A.M. inzh.; ZINOVA, A.N., inzh.

Use of rapid-hardening concrete in lining ventilation shafts at  
the "Chaykino-Glubokaya" mine No. 1. Shakht. stroi. no. 5:25-26 '58.  
(MIRA 11:6)

(Shaft sinking) (Concrete)

SHAFERSHTEYN, I.Ya.; ZINOVIA, A.P.

Determination of sulfosalicylic acid. Ukr.khim.zhur.17 no.5:786-792  
'51. (KLEA 9:9)

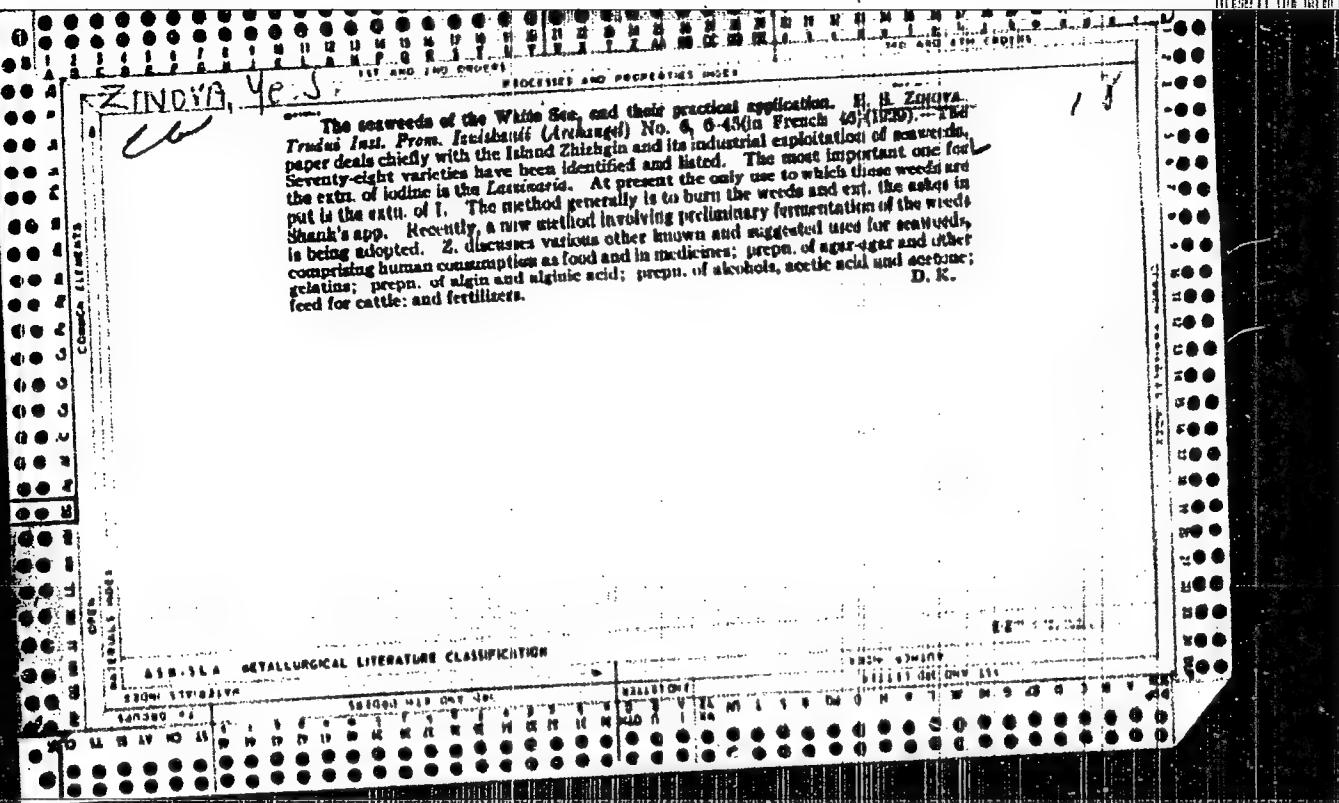
1.Khar'kovskiy gosudarstvennyy universitet.  
(Salicylic acid)

ZINOVÁ, A-P.

British Abst.  
A III  
Aug. 1953  
Radiations

✓Analysis of the combination of serum albumin and sulphosalicylate.  
I. Y. Shaferstein and A. P. Zinová. (*Biochimia*, 1952, 19, 7-12).—  
Sulphosalicylate is shown to act as a dibasic acid in reacting with  
serum albumin, and the mechanism of pptn. of proteins by this  
and other dibasic acids is discussed. D. H. SMITH

Inst. Chem., Khar'kov State Univ.



ZINNOVA, Ye.S. [deceased].

Algae of the Arctic Ocean. Trudy Bot. inst. Ser. 2 no. 11:39-51 '56.  
(Arctic Ocean--Algae)

(MLRA 10:2)

"APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R002065220011-2

ZINOVA, Ye.S.

Algae of Okhotsk Sea. Trudy Bot.inst. Ser. 2 no.9:259-310 '54.  
(Okhotsk Sea--Algae) (MLRA 7:11)

APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R002065220011-2"

ZINOVA, Ye.S.

Algae of Tatar Strait. Trudy Bot. inst. Ser.2 no.9:311-364 '54.  
(Tatar Strait--Algae) (MSEA 7:11)

ZINOVA, Ye.S.

Marine algae of southeastern Kamchatka. Trudy Bot. inst. Ser. 2 no.9:  
365-400 '54.  
(Kamchatka--Algae)

ZINOVEV, N.

Pribzhenyi metod otsenki vibratsionnoi nadezhnosti turbinnykh diskov. Tallin,  
Izd-vo Tallinskogo Politekhnicheskogo Instituta, 1958. 14 p.

TULIMULD (Eesti PEN-klubi, Valismaine Eesto Kirjunike Liit,  
Ulemasilmne Eesti Kirjanduse Selts) Lund. Estonia.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, no.12, Dec. 1959.

Uncl.

ZINOVATNYY, V.

Work practice of the permanent active production conference.  
Razved. i okh. nedr 27 no.6:48-50 Je '61. (MIRA 14:9)

1. Artemovskaya kompleksnaya geologorazvedochnaya partiya.  
(Prospecting)

ZINOVYEYEV, I.

AUTHOR: Zinoveyev, I.

107-57-5-22/63

TITLE: The Voice of Peace and Friendship. The Whole World Listens to Moscow  
(Gолос мира и дружбы. Москву слушает весь мир)

PERIODICAL: Radio, 1957, Nr 5, p 17 (USSR)

ABSTRACT: Dimitr Geraskov, Sofia, Bulgaria, writes about the "great interest" to Moscow broadcasts in Bulgaria. Moscow radio receives daily "hundreds of letters" from "over one hundred countries of the world". Frantisek Bogumil, Czechoslovakia, writes about a "durable peace in the whole world". A. Tanius, Lebanon, writes: "Your radio tells truth and exposes the intrigues of colonizers and warmongers..." Letters of radio listeners state that the "Voice of America", BBC, "Free Europe" are trying to obfuscate the listeners while the Moscow radio is helping correctly "orientate oneself in the political situation". P. Diversi, an Italian radio listener, believes that Moscow broadcasts favorably differ from the "warmongers' broadcasts" in discussing "peace, construction projects, life". R. Bullen, England, finds that Moscow information "corrects the wrong information offered to us here". P. Guido, Italy, speaks about "truth" of Moscow broadcasts. R. Khusto (Russian spelling), Argentine, speaks about the "hopes" inspired by the Moscow radio.

Three photos show small audiences of Moscow radio in Poland, Rumania, and Outer Mongolia.

AVAILABLE: Library of Congress  
Card 1/1

BORISOVA, I.; ZINOVYEV, I.

The whole world tunes in to Moscow. Radio no. 5:16-17 My '57.  
(Moscow--Radiobroadcasting) (MLRA 10:6)

ZINOVIK, L.

Bank and community control, Den. i kred. 20 no.6:53-54 Je  
'62. (MIRA 15:6)

1. Nachal'nik kreditnogo otdela Oktyabr'skogo otdeleniya gosudarstven-  
nogo banka g. Sverdlovска.  
(Sverdlovsk Province--Banks and banking)  
(Sverdlovsk Province--Industrial management)

ZINOVICH, Ivan Yevdokimovich; ZAVERNYAYEVA, L.V., red.; PONOMAREVA,  
A.A., tekhn. red.

[Economic analysis of collective-farm production] Ekonomi-  
cheskii analiz kolkhoznogo proizvodstva. Moskva, Ekonomizdat,  
1962. 148 p.  
(Khmel'nitskiy Province--Collective farms--Accounting)

MEKHEDA, M.I., redaktor; ZINOVICH, I.Ye., redaktor; ROMASHKO, E.N.,  
redaktor; SULKOVSEYA, A.A., redaktor; ZUBRILINA, Z.P., tekhnicheskiy  
redaktor; GUREVICH, M.H., tekhnicheskiy redaktor

[Our experience in studying the collective farm economy; a collection  
of articles based on a Khmel'nitskiy Province agricultural conference]  
Naš opyt izuchenija kolkhoznoj ekonomiki; sbornik statej po materia-  
lам Khmel'nitskoj oblastnoj ekonomiceskoi sel'skokhoziaistvennoj  
konferentsii. Moskva, Gos. izd-vo selkhoz. lit-ry, 1956. 166 p.  
(Collective farms) (MLRA 9:12)

LUTSEVICH, P.A.; MONGALEV, G.F.; MIKHALEVICH, N.G.; ZINOVICH, K.F.;  
SAFRONENKO, A.P.; KLIMENKOV, P.A.; GAYDUKEVICH, N.M.; SILIN,  
M.S.; BRAZOVSKIY, P.V.; KOVPAK, M.D.; MELESHKEVICH, O.A.;  
KAMENTSEVA, V.N.; KULIKOVSKIY, A.V.; TARAYKOVICH, P.I.;  
ALEYNIKOV, G.A.; SHMULEVICH, Sh.S.; GRACHEVA, K.I.; NIKOLAYEVA,  
Yu.N.; VOLOKHOV, M.A.; DOMASHEVICH, O., red.; KARKLINA, E.,  
red.; ZUYKOVA, V., tekhn. red.

[Manual for livestock raisers] Spravochnik zhivotnovoda.  
2., dop. i perer. izd. Minsk, Gos.isd-vo sel'khoz.lit-ry  
BSSR, 1963. 462 p. (MIRA 16:8)

1. Glavnny zootekhnik Upravleniya nauki Ministerstva sel'skogo  
khozyaystva Belorusskoy SSR (for Safronenko).  
(Stock and stockbreeding)

ZINOVICH, N.S.

## S(2)125(1) PLATE I BOOK EXPLOITATION SOV/231

Akademiya Nauk SSSR. Institut mashinovedeniya

Perevodch. stroyosti detaley maskin / sull'ridorovaniye i uverotat' i neprilazhit' / increasing the wear resistance of machine parts / "Uverotat' i neprilazhit' / Collection of Articles" Moscow, Nauk. i Tekhn. 1959. 126 p. Errata slip inserted. 4,500 copies printed.

Ed. (Title page): N. N. Krushchikov, Doctor of Technical Sciences! M. I. Krasil'shchikov, Candidate of Tech. Sci.; V.D. K. N. Krasil'shchikov, Candidate of Tech. Sci. for Literature on General Mechanical Engineering, Machine Building (Mashgiz). L.L. Romanova, Engineer.

Purpose: This collection of articles is intended for engineering and technical workers of machine-building and overhauling plants.

Coverage: This book presents results of investigations of methods to increase the resistance of machine parts to seizure. A new method of sulfuration which improves the friction behavior of cast iron and steel and an analysis of the effect of sulfuration on the antifriction properties and wear of metal are given. These articles are the transactions of a seminar held at the Institute of Mechanical Engineering of the Academy of Sciences, USSR, in December 1956.

## TABLE OF CONTENTS:

Dobrovolskii, M. V., Doctor of Chemical Sciences, Ios. A. Alkin, and T. V. Khachikova, Engineers. Selecting Salt Baths for Sulfitation of Iron Alloys 79  
The authors recommend the use of a salt bath as the most controllable and uniform method of sulfuration. They describe the dependences of these baths and sulfurization temperatures of operations.

Kuznetsov, N. D., Engineer. Investigation of the Sulfurization Process 79  
The author discusses sulfuration in the liquid bath, bathe operating at medium and low temperatures; control of the bath work-in, and wear resistance tests.

Sel'mov, V. D., Engineer. X-ray Analysis of the Surface Layer 95  
The author investigated various bath compositions by X-ray analysis in order to evaluate the character of sulfurization in respect to simultaneous formation of nitrides.

Ollman, T. P., Engineer. Sulfurization of Iron Ferrite With Gas 99  
The author describes a process in which a sulfur suspension is external oil and ammonia are introduced together into the furnace. This process is a combined sulfurizing and crizzling process having several advantages in comparison with other sulfurization methods according to the author.

Ollman, T. P., Engineer. Sulfurization or Bushings Made of Zinc Powder by Introducing Sulfur into the Charge 105  
The author describes the results of experiments using a method claimed by the author to be new. The work was carried out at Stalingrad Tractor Scientific Research Institute. The author stresses the advantages of this process which gives a uniform distribution of sulfides in the metal.

AUTHORS: Werner, Ye.E. and Zinovich, N.S. SOV/129-59-3-14/16  
TITLE: Properties of Bearing Materials at 20 - 125 °C  
(Svoystva pcdshipnikovykh materialov pri 20 - 125°)  
PERIODICAL: Metallovedeniye i Termicheskaya Obrabotka Metallov,  
1959, Nr 3, pp 56 - 59 (USSR)  
ABSTRACT: In IC engines, the operating temperatures of bearings frequently reach 100 °C. Usually given characteristics of the mechanical properties of bearing materials refer to temperatures not exceeding 25 °C. In this paper, the results are described of mechanical tests of bearing alloys in the temperature range 20 - 125 °C. The chemical compositions (in %) of the four investigated alloys were as follows:

	Sn	Sb	Cu	Te	Ni	Cd	As	Pb
B89 base	7.8	3.8	-	-	-	-	-	0.10
B83	82.58	11.11	6.13	-	-	-	-	0.15
BN	9.56	14.25	1.84	-	1.25	1.73	0.65	base
BT	9.97	14.82	0.78	0.08	-	-	-	"

Card 1/3 Of these, two are tin-base alloys and two lead-base alloys, mainly with antimony and copper additions.

SOV/129-59-3-14/16

## Properties of Bearing Materials at 20 - 125 °C

The measured hardness values are entered in Table 2, the results of compression tests at temperatures up to 120 °C are entered in Table 3 and the ratios of the hardness to the yield point in compression are entered in Table 4. The measured data are also plotted in graphs, Figures 1-5. On the basis of the obtained results, the following conclusions are arrived at.

- 1) In tin alloys of the type B83, an increase in the temperature does not bring about a decrease in the plastic properties, characterised by the flattening of the specimen as a result of compression. In lead alloys, the magnitude of the flattening decreases appreciably with increasing temperature.
- 2) For alloys which contain SnSb crystals as the hard structural component, the ratio of the hardness to the compression strength was not a constant value; with increasing test temperature, this ratio also increases without any specific interrelation (it differs for each of the alloys).
- 3) The cracking up of the babbitt BN and the flattening of the babbitt BT observed in the operation of bearings

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Properties of Bearing Materials at 20 - 125<sup>6</sup>C SOV/129-59-3-14/16

in the case of excessive tightening is explained not only by the difference in the fatigue strength but also by the fact that at elevated temperatures, the babbitt BN breaks up almost without any plastic deformation (with a low magnitude of flattening of the specimen), whilst the babbitt BT has a relatively low strength. There are 5 figures, 4 tables and 1 Soviet reference.

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L-3415-66 EWP(e)/EWT(u)/EWP(w)/EWP(l)/T/EWP(t)/EWP(b) IJP(c)  
NMW/JD/GS

ACCESSION NR: AT5024873

UR/0000/65/000/000/0065/0074

AUTHOR: Zinovich, N. S.

TITLE: Experience in using boronizing in tractor building

SOURCE: AN UkrSSR. Institut problem materialovedeniya. Diffuzionnyye pokryefya na metallakh (Diffusion coatings on metals). Kiev, Naukova dumka, 1965, 65-74

TOPIC TAGS: boron, metal heat, treatment, wear resistance, tractor

ABSTRACT: With the object of increasing the wear resistance of the blocks and link pins of caterpillar tracks and determining the effect of increasing the hardness of one member of the friction pair the author investigated the effect of the boronizing of link pins on the service life of blocks of the DT-54A caterpillar tractor, cast of G13L high-manganese steel. The boronizing was performed in a bath of borax at 950°C in the presence of electric current for 1.5-1.0 hr, resulting in the formation of a 0.12-0.18 mm deep diffusion layer on the surface of the link pins. This layer consisted of the iron borides Fe<sub>3</sub>B and Fe<sub>2</sub>B and its hardness was H<sub>v</sub> = 1400-1900. Following their boronizing, the link pins were normalized at

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ACCESSION NR: AT5024873

820-840°C for 2 hr, surface-hardened in a high-frequency current installation, and oil-tempered at 180°C for 2 hr. Subsequent laboratory wear-resistance tests of the link pins in a friction pair with lugs revealed that, under conditions of purely abrasive wear,<sup>1</sup> the boronized layer not only protects the link pin against wear but also markedly reduces the wear of the lugs. This was followed by field tests on 53 tractors of the DT-54A type, of which 12 were with non-boronized link pins. After 667 hr the boronized link pin still is hardly worn and retains its shape, whereas the non-boronized link pin becomes deformed and unfit for further operation. On chernozem soils the average service life of the boronized link pins is 2400 hr compared with 1760 hr for non-boronized link pins; the wear of the lugs operating in a pair with boronized link pins is generally 15% lower. Thus, the boronizing of link pins in the track blocks of the DT-54 tractors, designed for operation in highly abrasive soils, increases the service life of these pins by 70-80%, markedly reduces the wear of the block lugs, and hence also, by extension, slows down the wear of the coupling elements, and it should be recommended primarily for the link pins used in the track blocks of tractors operated on sandy soils. Orig. art. has: 6 figures.

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ACCESSION NR: AT5024873

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: MC, RE

NR REF SOV: 000

OTHER: 000

Card 3/3 M.L.

ZINOVICH, N.S.

USSR/Engineering - Chrome plating

Card 1/1 : Pub. 12 - 8/14

Authors : Zinovich, N. S., and Avrukh, E. L.

Title : Thermodiffusion chrome-plating of precision parts for a fuel manifold

Periodical : Avt. tract. prom. 5, 25-27, May 1954

Abstract : Thermodiffusion chrome-plating of precision parts for a fuel manifold is described. The chrome plating was conducted on components made of KhVG, ShKh15, and 38 steels in the temperature range of 900 to 1150°C. Tables; illustrations; graph.

Institution : .... Zi.Ru Auto Tractry Inst

Submitted : \*\*\*\*

KUZNETSOV, Ye.A.; ZINOVKIN, A.D.

Geological and petrological investigation of the Sysert granite  
massif. Trudy Inst.geol.nauk no.147:55-141 '53. (MLRA 7:3)  
(Sysert massif--Granite) (Granite--Sysert massif)

ZINOVKIN, G.

Technically based time norms for loading and unloading work.  
Bul. nauch. inform.: trud i nar. plata 3 no.8;15-19 '60.

(MIRA 13:9)

(Loading and unloading--Production standards)

FROLOV, G.; ZINOVKIN, G.

Methodology of creating and using uniform norms for loading and  
unloading work. Sots. trud 5 no.11:102-106 N '60. (MIRA 14:1)  
(Loading and unloading—Production standards)

BARABASH, M.; ZHUKOVA, N.; ZHURAVLEV, I.; ZINOVKIN, G.

Technically based time norms for loading and unloading work  
in refrigerators. Biul.nauch.inform.: trud i sar.plata 3  
no.9:27-30 '60. (MIRA 13:9)  
(Loading and unloading--Production standards) (Refrigerators)

ZINOVKIN, G.

Obligation successfully carried out. Avt. transp. 34 no.6:  
27 Je '56. (MERA 9:9)

(Transportation, Automotive)

ZINOVKIN, G.S., inzh.

Prospects of the development of the electrical insulator  
industry. Elektrotekhnika 35 no.1:13 Ja '64.

(MIRA 17:2)

~~ZINOVKIN, G.S.,~~ otv. za vypusk; GOL'DINA, N.I., red.; PONOMAREVA, A.A.,  
tekhn.red.

[Unified production and time norms for ship loading and unloading  
operations in sea harbors] Edinyye normy vyrabotki i normy vremeni  
na sudovye pogruzochno-razgruzochnye raboty, vypolniaemye v morskikh  
portakh. Moskva, Gosplanizdat, 1960. 381 p.

(MIRA 14:4)

1. Moscow. Tsentral'noye byuro promyshlennyykh normativov po trudu.  
(Harbors) (Loading and unloading--Standards)

ZINOVKIN, G.S., otv. za vypusk; GOL'DINA, E.I., red.; GERASIMOVA,  
Ye.S., tekhn.red.

[Standard work and time norms for loading and unloading of  
railroad cars, motor vehicles, and work in warehouses]

Edinyye normy vyrabotki i vremeni na vagonnye, avtotransportnye  
i skladskie pogruzochno-razgruzochnye raboty. Moskva, Gosplan-  
izdat, 1960. 301 p. (MIRA 14:2)

1. Moscow. TSentral'noye byuro promyshlennyykh normativov po  
trudu.

(Loading and unloading)

ZINOVKIN, G. S., otv. za vypusk; GOL'DINA, E. I., red.; CHRASINOVA, Ye. S.,  
tekhn.red.

[Unified production and time standards for ship loading and  
unloading operations in river harbors] Edinyye normy vyrabotki  
i vremeni na sudovyye pogruzochno-razgruzochnye raboty, vypolniamye  
v rechnykh portakh. Moskva, Gosplanizdat, 1960. 276 p.  
(KIRA 14:4)

1. Moscow. Tsentral'noye byuro promyshlennyykh normativov po trudu.  
(Harbors) (Loading and unloading--Standards)

SOROCHKIN, Igor' Mikhaylovich; GRISHIN, Leonid Ivanovich; ZINOVKIN,  
G.S., retsenzent; BARBASHIN, M.K., retsenzent; KOREUT, L.V.,  
red.; SATAROVA, A.M., tekhn. red.

[Organization of work and wages in meat combines] Organiza-  
tsiia truda i zarabotnoi platy na miasokombinatakh. Moskva,  
Pishchepromizdat, 1963. 202 p. (MIRA 16:6)

(Meat industry--Management)  
(Wages--Meat industry)

ZINOVKINA, L.N., meditsinskaya sestra (Moskva)

Spinal puncture and complications from brain and spinal cord tumors.

Med. sestra 20 no.8:51-54 Ag '61. (MIRA 14:10)

(SPINE-PUNCTURE) (SPINAL CORD-TUMORS)

(BRAIN-TUMORS)

SOV/95-59-2-8/13

AUTHORS: Zinovkina, M.M. and Krikun, V.Ya., Engineers

TITLE: Construction and Road Making Machines Equipped With New Device for Transportation Speed Reduction of Tractors S-80, Without Substitution of Tractor Gear Box (Stroitel'nyye i dorozhnyye mashiny s novoy skhemoy ponizheniya transportnykh skorostey traktora S-80 bez zamены traktornoy korobki)

PERIODICAL: Stroitel'stvo truboprovodov, 1959, Nr 2, pp 21-23 (USSR)

ABSTRACT: One of the basic equipments of construction machines and road making machines, such as rotary excavators, trench fillers, pipe-laying machines, etc, is the tractor for moving the machine. Such tractor needs to be adapted to the working conditions of the respective machines, in particular in regard to speed reduction, which so far could only be done by replacing the original gear box by a new one equipped with additional speeds. The MEMZ (Moscow Experimental Mechanical Plant) has elaborated a new scheme of reducing the transportation speeds of the tractor S-80, without replacing the tractor gear box. The reducing mechanism has been executed in the shape of a single-step planetary reducer with interior meshing mounted on the upper gear shaft. The design and

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Construction and Road Making Machines Equipped With New Device for Transportation Speed Reduction of Tractors S-80, Without Substitution of Tractor Gear Box

operation of the mechanism are fully described in the article and illustrated by a drawing. The gear box thus equipped with a planetary reducer has 5 transportation speeds "forward" and 4 transportation speeds "reverse"; it has also 4 working speeds "forward" and 4 working speeds "reverse". The experimental model of this mechanism has been tested in the plant and is now undergoing road tests. There are: 1 photograph and 1 diagram.

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